



## Interactive Inventory Monitoring



### Inventory Monitoring Program using an RFID-based System

Keeping track of inventory whether in the form of products, books, documents, electronic copies, or materials of sensitive matter, is a continuous and monumental task. Determining where an inventory item is presently located, or mislocated, is a time consuming process as inventory grows and items are repaired, maintained, replaced, or moved and recharacterized. Inclusion of a paper slip noting the “history” of the item is only useful if the item users are diligent about supplementing this history with an account of recent activities involving the item and/or the present status of the item. When multiple copies of an inventory item are present and are kept in different locations, the job of keeping track of items becomes increasingly more difficult to control and maintain.

This innovative approach uses an RFID-based system to assist the user in locating an item visually in response to specification of them item electronically. This system is ideal for warehouse management and product logistics, and can also be used to provide security for an inventory of weapon systems, weapons components, munitions, or other sensitive items that require extreme protection.

#### BENEFITS

- **Instant reporting of item location and details**
- **Helps locate misplaced items**
- **Paperless system**
- **Provides security for inventory items**



technology opportunity

# Interactive Inventory Monitoring: Technology Detail

The invention is an RFID-based system that helps users locate an item visually, in response to specification of the item electronically. The item(s) being sought may be a book on a library shelf, an item from a store inventory, legal or financial document, medical record, weapon system, or weapon component (presumably) located in an armory or similar location. Each such item is tagged by a radio frequency identity detector (RFID), which does not require a battery but is powered using an electromagnetic coil that is embedded in or associated with the item. The shelving or other containment vessel or receptacle for the item(s) provides an alternating electromagnetic field to power the embedded coils and can identify the item location if the item is on or adjacent to the shelving/vessel, even if the item is not at its assigned location. Each coil includes a low power, programmable chip containing relevant information on the item (id. no., class to which item belongs, present status of the item, relevant item characteristics, recent activity affecting the item, etc.).

This system can also provide security for an inventory of weapon systems. In this instance, the inventory receptacle is powered continuously, and each protected item emits a unique encrypted code associated with the item when the item is on or in or adjacent to the receptacle at its assigned location. When the protected item is not on or adjacent to the receptacle at its assigned location, or is located elsewhere on or adjacent to the receptacle, an alarm or notification signal is issued by the system, indicating when the item was last sensed at its assigned location. Use of an encrypted code of appropriate complexity can minimize or eliminate the possibility of “spoofing” to cover absence of the protected item.

## APPLICATIONS

- **Product Logistics and Warehouse Management**
- **Library Catalogs**
- **Sensitive Materials**
- **Weapons systems or components**
- **Medical and Financial Records**



## Patents

This technology has been patented (U.S. Patent 7,516,890).  
Reference: ARC-15684-1.

## Licensing and Partnering Opportunities

NASA's Technology Transfer Program seeks to transfer this technology out of NASA's space program to benefit U.S. industry. NASA Invites companies to inquire about licensing possibilities for this technology for commercial applications.

### Learn More

*For more information on this technology, and to discuss licensing and partnering opportunities, please contact:*

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